

Lesson's learned or reinforced.

PNW2 Communications Unit for fire season 2017.



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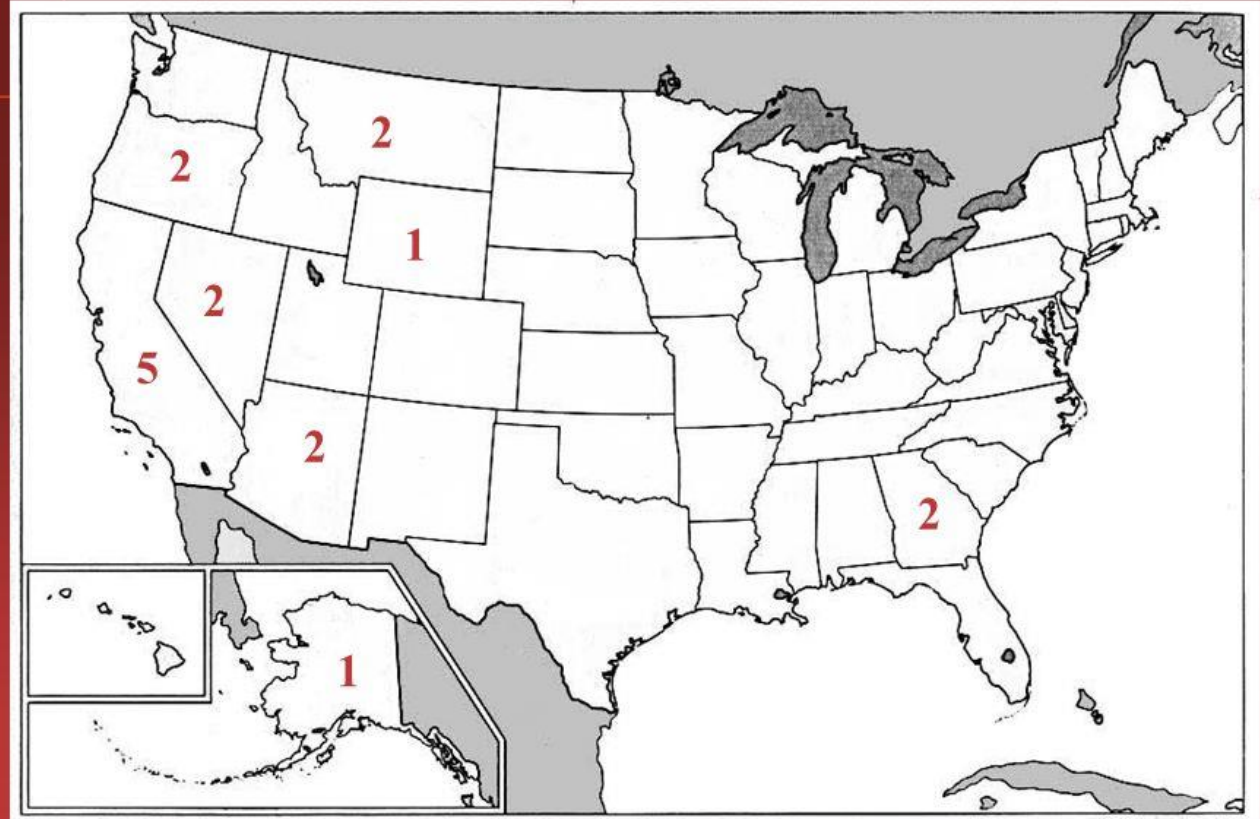
What is it that we do?

Although the primary purpose of an incident management team is for wildfire response, an IMT can respond to a wide range of emergencies, including fires, floods, earthquakes, hurricanes, tornadoes, tsunamis, riots, spilling of hazardous materials, and other natural or human-caused incidents.

Where does the team come from?

16 teams in the country. + FDNY

US Map with Team Locations



Where does the team come from?

Table 3. Current distribution of IMTs by geographic area, type, and affiliation

Geographic Area	Type 1	Type 2	WFMT¹	NIMO	State-sponsored Type 1/Type 2 Qualified	Total
Northern Rockies	2	5	1.5	–	–	8.5
Rocky Mountain	1	2	–	–	–	3
Southwest	2	4	0.5	1	1	8.5
Great Basin	2	6	–	1	–	9
California	4	2 North; 5 South	–	–	10 CALFIRE	21
Northwest	2	6	–	1	5 WA, 3 OR	17
Alaska	1	2	–	–	–	3
Southern	2	1	–	1	10	14
Eastern	–	–	–	–	5	5
Totals	16	33	2	4	34	89

¹ Wildland Fire Management Team.

What does the communications section do?

1. Establish a point of contact for incoming and outgoing phone and radio communications.
2. Deploy a stand alone radio network to support the incident.
3. Manage medical emergencies and ordering activity from the line.
4. Track outgoing and incoming line personnel from the fire lines.
5. Increasingly assisting or managing internet based communications.
6. Assisting in cellphone service or network forwarding.
7. Provide multi-agency support in the realm of communications.

Fire Season 2017 dispatches:

Denotes usually a 14 to 21 day dispatch

Hanford, WA. Silver Dollar Fire July 3 (Cancelled).

Diamond Creek Fire North of Winthrop, WA Discovered July 23rd. Team dispatched: July 26 or so. Fire Extinguished October 23rd. Human Caused.

Whitewater Fire Hoodoo/Detroit, OR which included dozens of smaller fires . Discover July 23rd. Dispatched @ August 15. Lightning Caused.

Jolly Mtn. Cle Elum, WA Dispatched September 2nd, 2017. Started August 11, 2017 from Lightning. Last known activity was January 24, 2018.

Chetco Bar Fire , Brookings, Oregon. July 12, 2017 from lightning. Assumed command 9/24/2017.

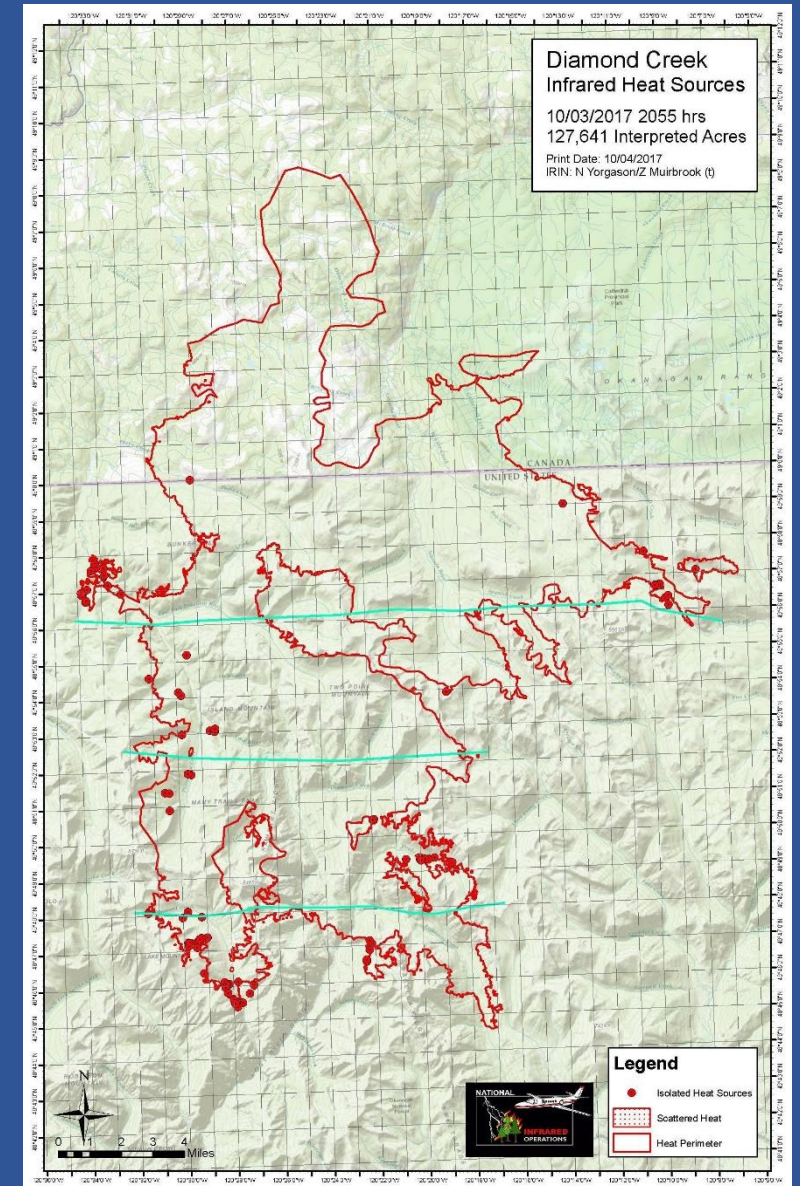
Fire Season 2017 dispatches:

Lesson Learned #1

1. Fire Season is no longer simple; it's now a marathon. If they could have, they would have dispatched us to a whole lot more incidents. Smaller incident management teams especially type 3 teams were incredibly busy.
2. An incident management team needs a dramatic increase in "Bench" players. We have gone from a bench in communications of 3 people to 16. Not only because of fatigue and home unit needs, but because incidents are getting so much larger and competition for resources are becoming so competitive.

Diamond Creek Fire: Winthrop, WA

Started out as a human caused fire in wilderness. A new way of approaching fire attack. We were told to “plan the fire” prior to attack.



Diamond Creek Fire: Winthrop, WA

Lesson reinforced 3: Attend the operations meetings and understand what's going on operationally. Understand their risk models.

Lesson reconfirmed 4: Operations and how they are conducted has implications on communications systems.



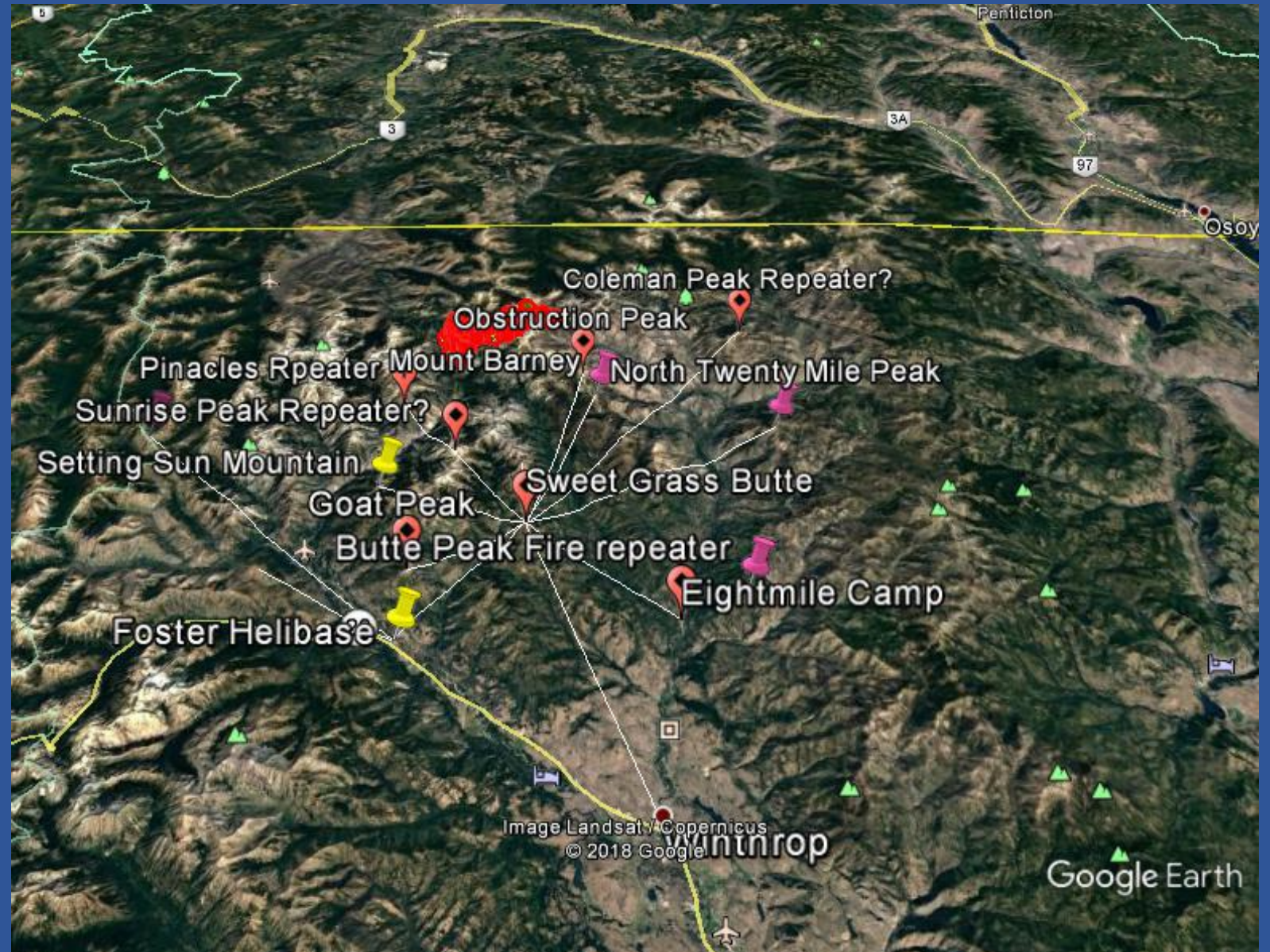
Air Attack footage by Chief Bob Madden.

Diamond Creek Fire: Winthrop, WA

Lesson 5: It is invaluable to plan your communications around a “contingency” frame of mind. Establish multiple locations and then analyze them including ground truth them.

Lesson 6: Team approaches are invaluable. Assign team members to search areas from both an operational perspective as well as a communications perspective.

Potential Repeater map with line of sight calculations. IR “red” shows the fire at the time of design.

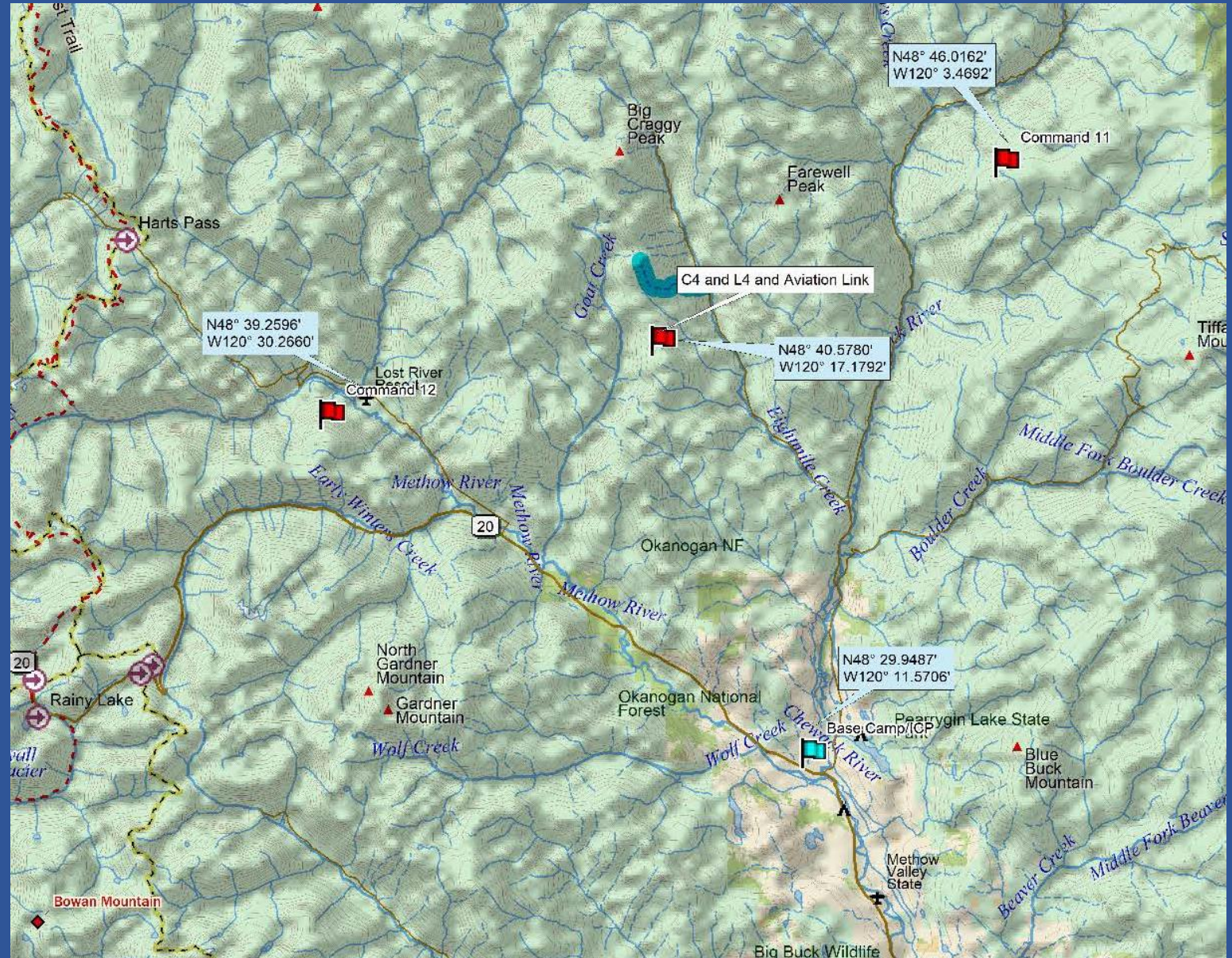


Diamond Creek Fire: Winthrop, WA

Lesson 7 reinforced: Plan your communications system where you think the fire is going (ops helping out).

Lesson 8: It's ok to use existing radio systems if that's all you have. No matter what 2 watts still has its limitations.

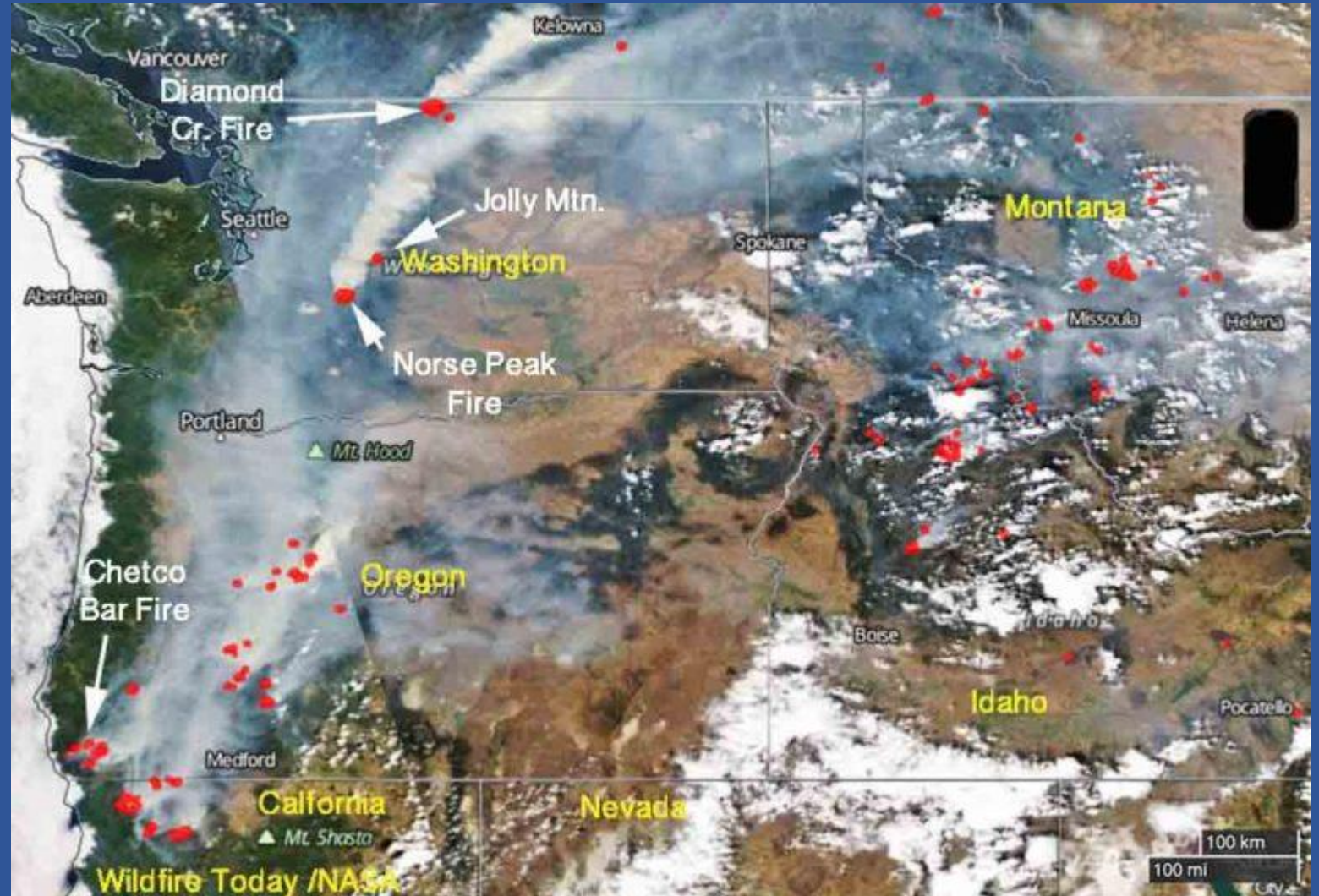
Lesson 9: Coordination with Canada on frequencies is a whole new dynamic.



Diamond Creek Fire: Winthrop, WA

Lesson 10: Smoke has all sorts of implications on communications.

- KA band satellite went off the air at times.
- Couldn't fly to some repeater sites.
- Solar cells had a hard time keeping up on daytime demand especially if they were dirty.
- Cell coverage seemed to go down in coverage.



White Water Fire. Detroit, OR



Mike Fontenot photo

White Water Fire. Detroit, OR



Mike Fontenot photo

Base Camp at Hoodoo, OR

White Water Fire. Detroit, OR



Mike Fontenot photo

Command 12 Repeater Site

White Water Fire. Detroit, OR



Mike Fontenot photo

Solar Portable Repeater with Mt. Jefferson in the background.

White Water Fire. Detroit, OR



Aaron (aka Double A, Ron) and Mike flying between repeaters in an A-star.

Mike Fontenot photo



Solar Portable Repeater at a fire lookout.

White Water Fire. Detroit, OR

11. Lesson Learned/Reinforced. Build your system with some overlapping coverage and the ability to expand without re-engineering.

12. Lesson Learned. Deploy your equipment thinking about the long term and severe weather.

Taking a repeater down at the end of September at 10K feet!



Chad Campignola photo

White Water Fire. Detroit, OR



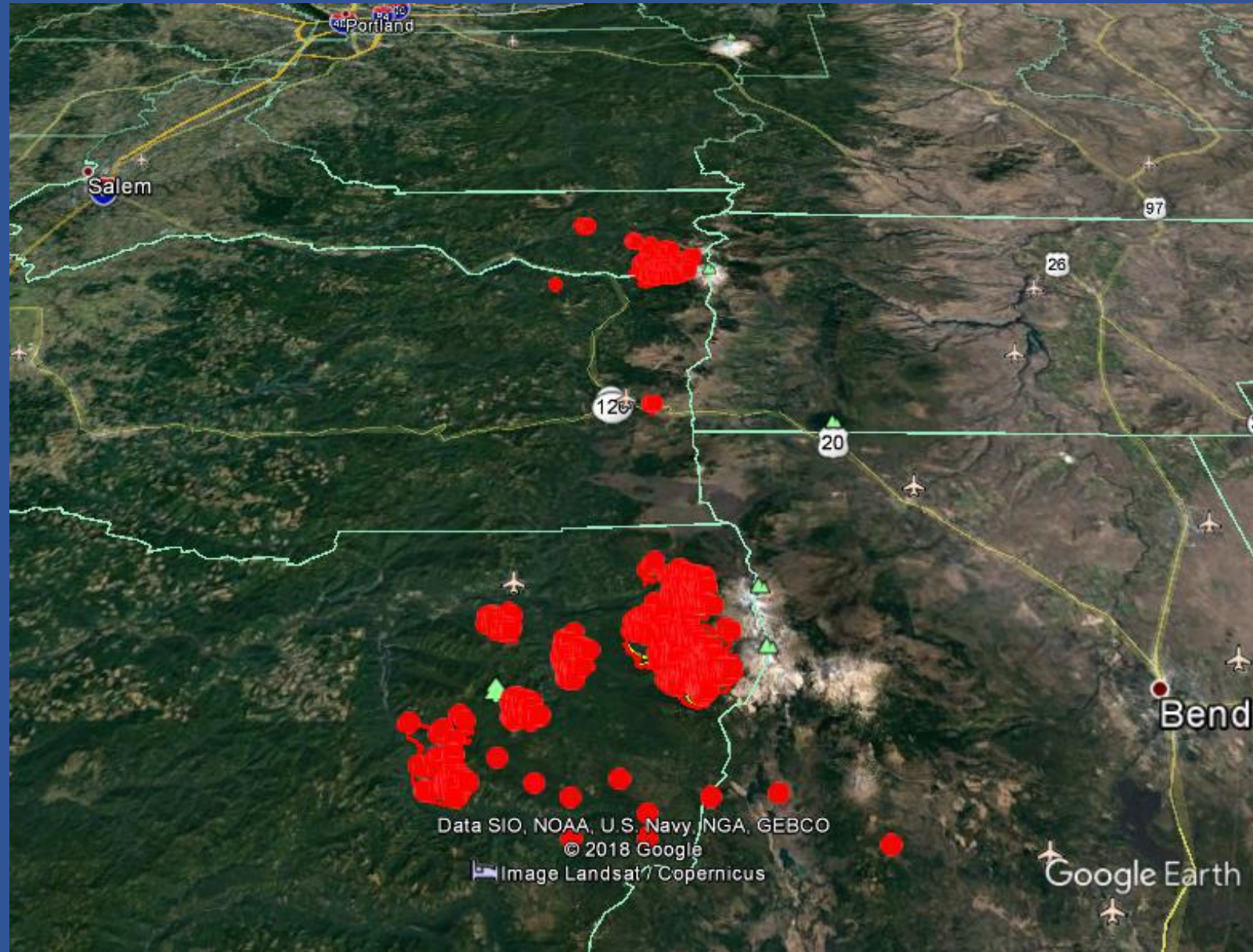
There is a radio antenna
under this...Just after a late
September blizzard.



Chad Campignola photo

White Water Fire. Detroit, OR

13. Lessons
Learned: Planning
on incidents to
get more complex
and frequency
shortages are
critical



Infrared image from NIFC IR flight.

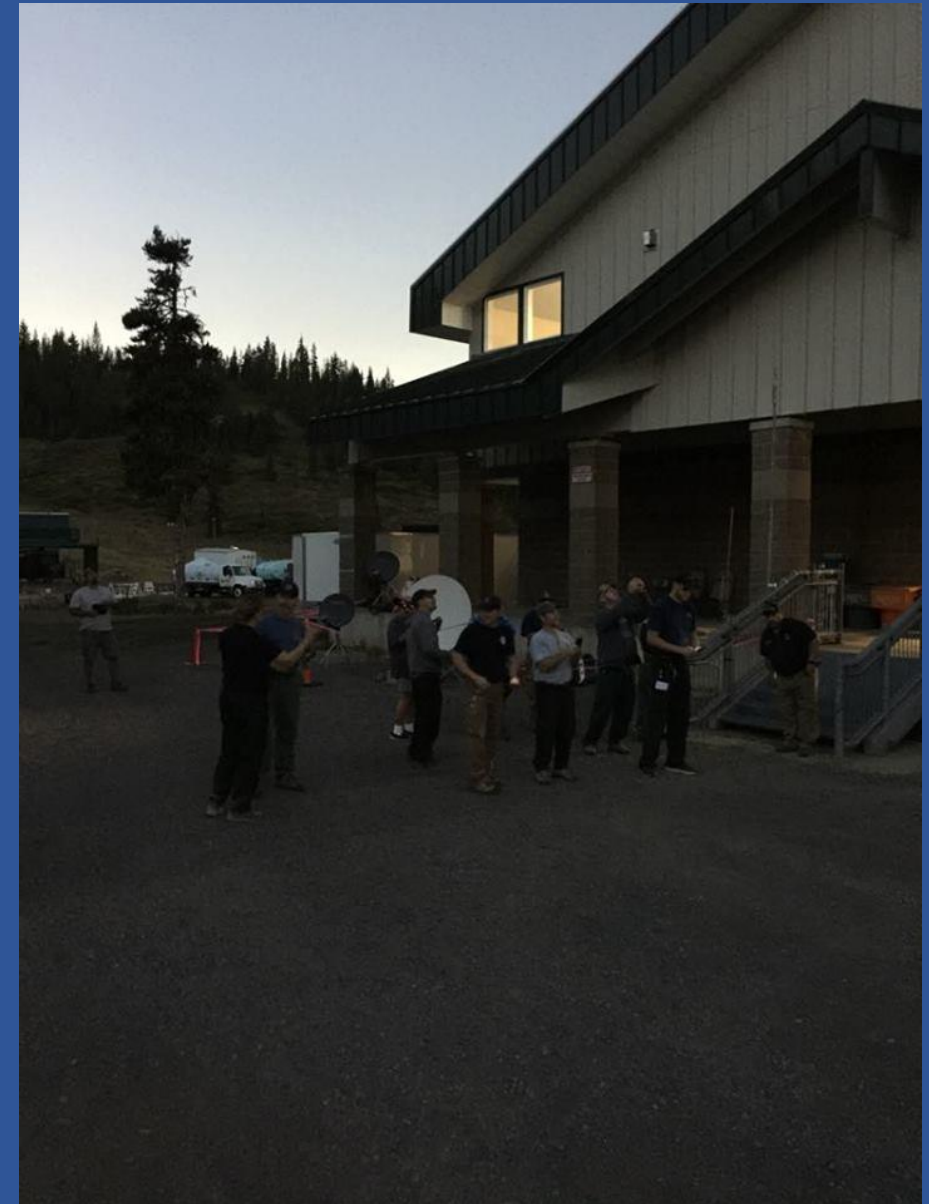
White Water Fire. Detroit, OR

14. Lesson learned.
Planning for an incident
with-in an incident is
invaluable.

The Dreaded Eclipse.



The communications team at
Whitewater (Day Shift)



White Water Fire. Detroit, OR

15. Lessons learned. The opportunity to network with locals and other state agencies as part of contingency planning was really important. We ended up using local resources to treat hurt citizens (alcohol/domestic violence) and some fire fighters though disaster medical facilities setup in Detroit.

16. Lesson reinforced. Prepping a “disaster radio” or a portable radio with tested emergency frequencies that can be pushed out to operations is invaluable.

Video taken of the Corona at Hoodoo, OR



White Water Fire. Detroit, OR

17. Lesson Re-learned. Amateur Radio was critical in our planning during the eclipse. Above fire camp was part of W7PRA's network of amateur repeaters including that had coverage over much of Oregon.



Infrared image from NIFC IR flight.

White Water Fire. Detroit, OR

18. The importance of pre-planned frequencies. Made actually available in radio ready program lists.

DPH Edit Unit Data Printout: Revised Mutual Aid Whitewater 8-19-17.dph

DPH Edit Ver: 3.5.5

©2002-2009 RELM Wireless Corporation

Date: Thu, Apr 5, 2018

Time: 10:44:29 AM

Group 1 Channel Settings:

	Label	RX Freq(M)	CG	NAC	TX Freq(M)	CG	NAC	Sq.	TlkGrp	Scn	BW	LP	
Ch 1	CMD8 WHTWTR	166.	0 (A)	.5	0659 168.	50 (A)	5	0659	Normal	1	-	N	-
Ch 2	CMD8 REBEL	171.	0 (A)	.8	0659 164.	50 (A)	.8	0659	Normal	1	S	N	-
Ch 3	FRISSELL	164.	0 (A)	.5	0659 164.	00 (A)	.0	0659	Normal	1	S	N	-
Ch 4	INDIAN	164.	0 (A)	.5	0659 164.	00 (A)	.8	0659	Normal	1	S	N	-
Ch 5	METCOM	154.	0 (A)	3	0659 159.	00 (A)	2	0659	Normal	1	S	N	-
Ch 6	ODOT 2	156.	0 (A)	.2	0659 159.	00 (A)	9	0659	Normal	1	S	N	-
Ch 7	OSP SJ1	154.	0 (A)	.7	0659 154.	00 (A)	.5	0659	Normal	1	S	N	-
Ch 8	OSP BP1	154.	0 (A)	.2	0659 159.	00 (A)	.0	0659	Normal	1	S	N	-
Ch 9	RED NET	151.	0 (A)	.7	0659 151.	00 (A)	.7	0659	Normal	1	S	N	-
Ch 10	WHT NET	151.	0 (A)	.7	0659 151.	00 (A)	.7	0659	Normal	1	S	N	-
Ch 11	SISTERS1	154.	0 (A)	0	0659 150.	00 (A)	.0	0659	Normal	1	S	N	-
Ch 12	SISTERS2	154.	0 (A)	0	0659 150.	00 (A)	.4	0659	Normal	1	S	N	-
Ch 13	DET REP	154.	0 (A)	0	0659 168.	00 (A)	.5	0659	Normal	1	S	N	-
Ch 14	DET TAC	155.	0 (A)	.0	0659 155.	00 (A)	.0	0659	Normal	1	S	N	-
Ch 15	LE DETROIT	168.	0 (A)	.3	0659 169.	00 (A)	.0	0659	Normal	1	S	N	-
Ch 16	A GUARD	168.	0 (A)	.0	0659 168.	00 (A)	.9	0659	Normal	1	S	N	-

We had a clonable radio tested and ready to use and to also program into other radios if needed.

White Water Fire. Detroit, OR

19. Lesson
Confirmed. Solar
systems save
hundreds of flight
and man hours.
Dramatically
reduces risk.



White Water Fire. Detroit, OR

More on SOolar



Mike Fontenot photo.

White Water Fire. Detroit, OR

More on solar.



Mike Fontenot photo

White Water Fire. Detroit, OR

NIFC 4312
Command
repeater with
a NIFC 4080
solar kit.



Mike Fontenot photo

White Water Fire. Detroit, OR

NIFC 4080 and
deep cycle
battery.
Second look.



White Water

20. Lesson
Learned. The
importance of
mapping and
asset tracking.



Mike Fontenot photo

White Water Fire. Detroit, OR

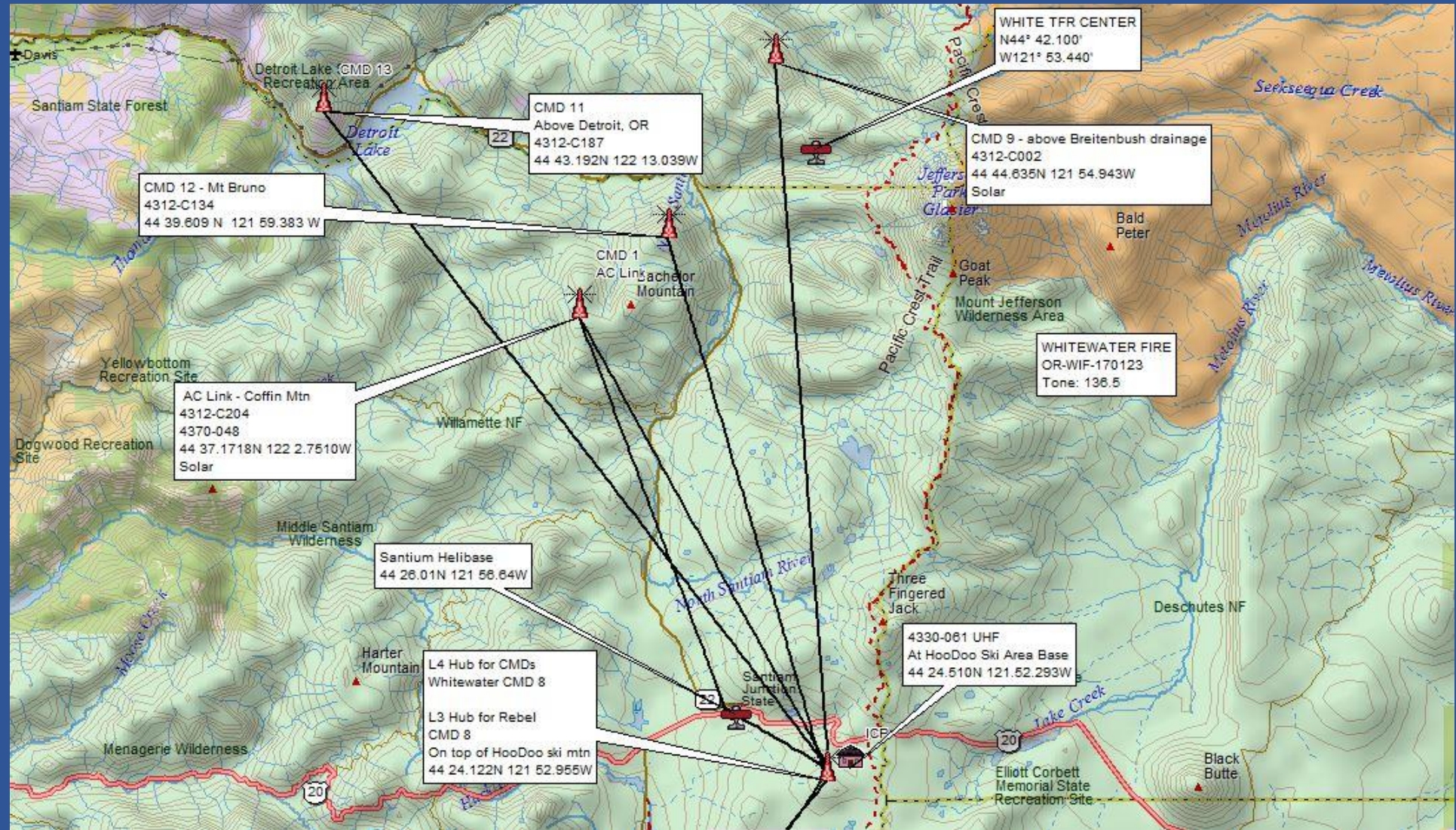
See the
flagging? This
is why ribbon
and road signs
typically need
help with
maps and
directions.



White Water Fire. Detroit, OR

21. An example of an asset map also showing how part of the system works.

The reason for this is that the installer might not be the one taking it down.



White Water Fire. Detroit, OR

22. Lesson
Learned. You have
to coordinate with
the those incidents
around you!

Jones Fire as seen
from our repeater.



White Water Fire. Detroit, OR

23. Lesson
Learned. You have
to follow the
other incidents as
they can become
your problem too.

Milli Fire East of
base camp.
Threatening
Sisters, Oregon



White Water Fire. Detroit, OR

24 . Lesson confirmed.
Aviation Safety and
planning. You must
consider access of your
repeater sites for more
than just propagation.

Coffin Mt.
Repeater



White Water Fire. Detroit, OR

25. Lesson Learned.
Take steps to
preserve your
equipment from
burn over...This also
helps prevent
critters from eating
your equipment.

Where old
fire shelters
go to die.



White Water Fire. Detroit, OR

26. Lesson Learned. Discussions about landing zones need to be had in advance. Landing in certain areas is always at the pilots discretion. Have plan B's and C's ready.



White Water Fire. Detroit, OR

27. Lesson
Reinforced. Your
relief may not be
familiar with the
area and
documentation that
you do before
transition is critical.

Transition to the
SouthWest Incident
Management Team...As if
the hats didn't identify the
team.



Jolly Mountain Fire. Cle Elum, WA

Jolly Mountain Base
Camp.



Jolly Mountain Fire. Cle Elum, WA

28. Lesson Confirmed.
Develop contacts as soon as you arrive. You never know what you might need help with!



Jolly Mountain Fire. Cle Elum, WA

29. Lesson learned. Getting creative with antennas is a good alternative when we have no other equipment or frequencies.

Kittitas County 911 loaned us a Log Periodic VHF antenna to help hear distant signals in areas where we didn't have access or didn't have any more repeaters or frequencies. (Red Top Mountains)



Jolly Mountain Fire. Cle Elum, WA

30. Lesson learned.
Microwave is proving critical
in getting highspeed data to
remote areas.

Image provided by a
contractor, Lyman
Communications. Jolly Mtn
Fire had microwave internet at
several locations on the fire
and in camp. Used fiber optics
to supply internet.



Jolly Mountain Fire. Cle Elum, WA

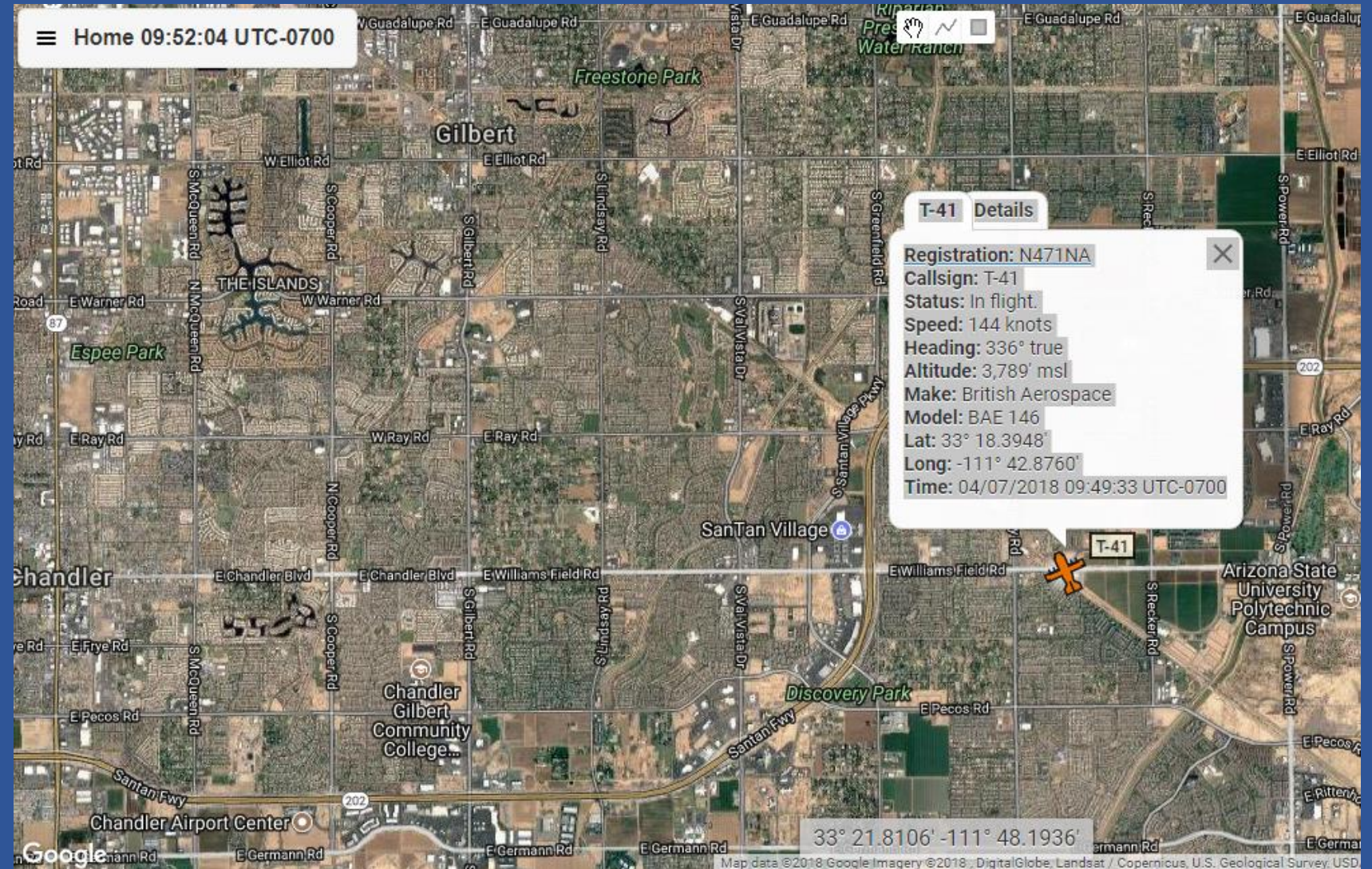
31. ADS-B is becoming critical. Automatic Dependent Surveillance Broadcast allows tracking and monitoring of aircraft in the area.

Microwave allows us to feed the system where topography might prevent signal acquisition.



Jolly Mountain Fire. Cle Elum, WA

32. Lessons Learned. We can remotely listen and feed the FAA or 3rd party users (Flight Aware) ADS-B signals and thus enhance our local safety. We help reduce the effects of topography.



Jolly Mountain Fire. Cle Elum, WA

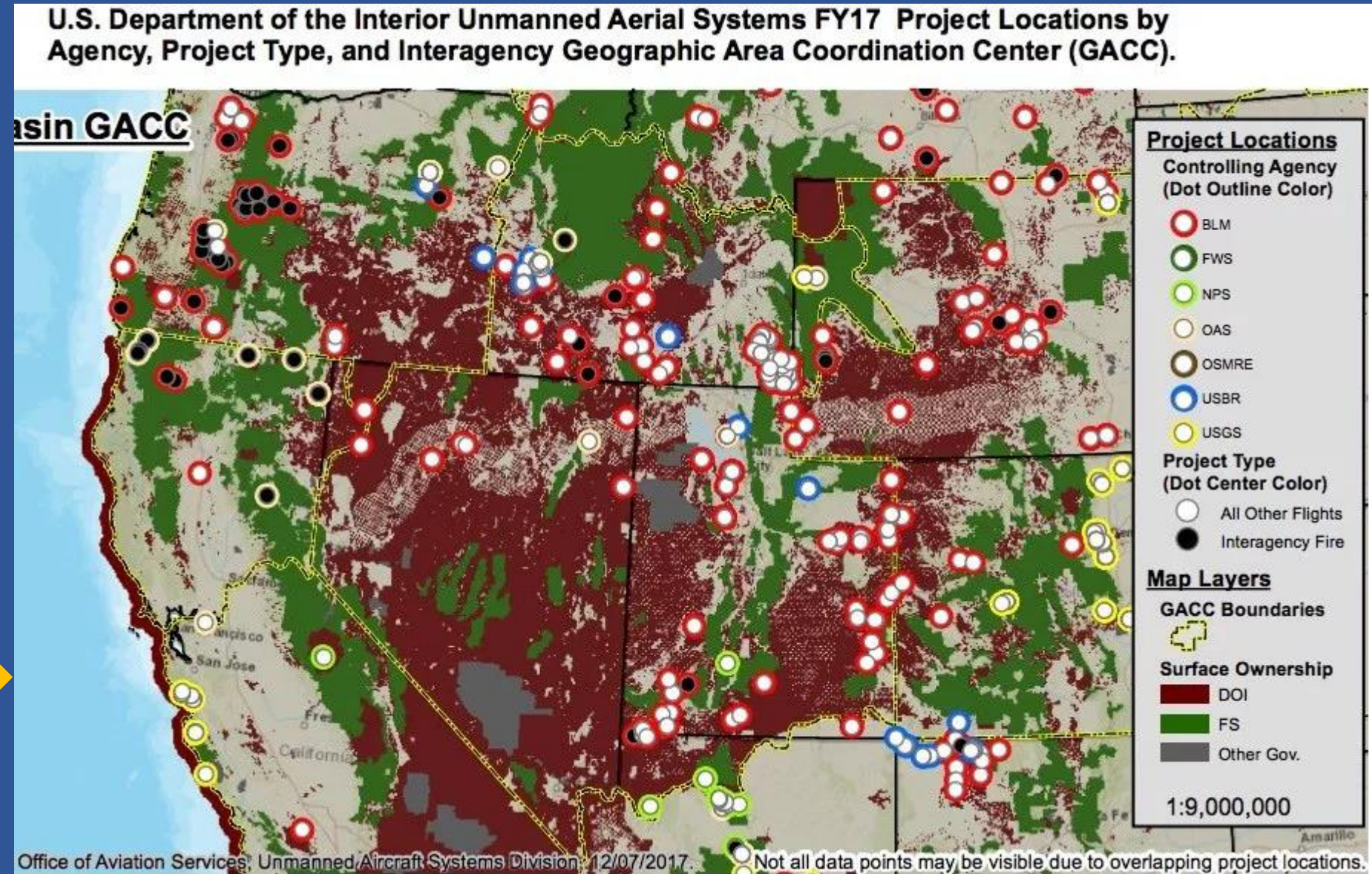
33. Lessons Learned. ADS-B and drones are an acceptable management tool that allows integrated operations with UAV's. It also helps us tell if the drone is authorized or not.



Jolly Mountain Fire. Cle Elum, WA

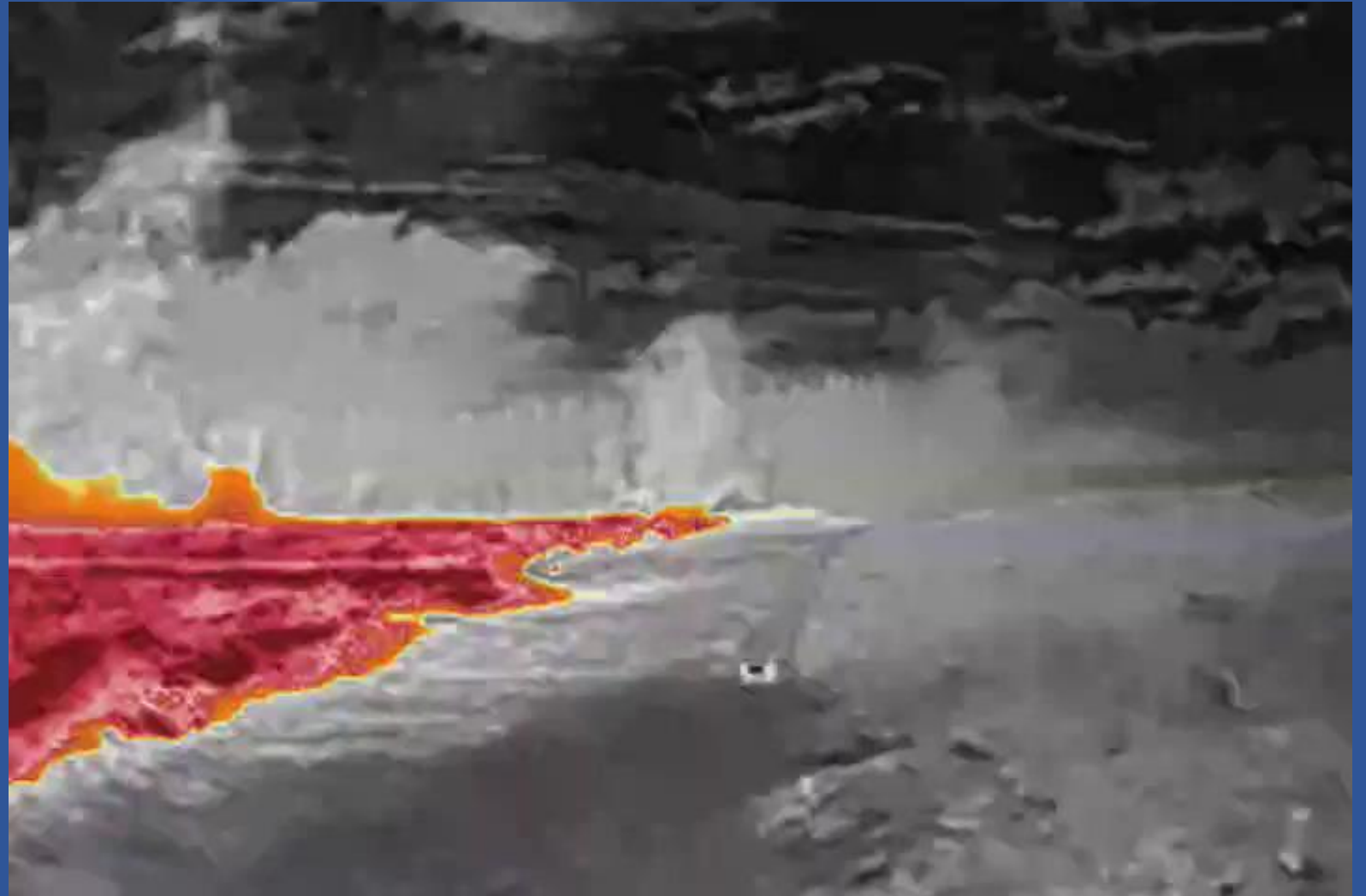
34. Lesson coming. Drones on forest fires and their images.

UAV missions in 2017.



Jolly Mountain Fire. Cle Elum, WA

Examples of thermal
images from UAV on
forest fires.



Jolly Mountain Fire. Cle Elum, WA

35. Lessons learned.
Attention to forest fires and major incidents seems to be increasing. They are truly multi-agency incidents.

The Incident Commander Chris Schulte (Left), and the Governor Jay Inslee (Right).



Washington Army and Air National Guard on wildland detail. Try to get them in communications if possible.



Atlas Peak Fire, Napa, CA

36 Lesson Learned. Political borders are diminishing.

37. Lesson Confirmed. Having an operational background helps understand the communications mission.



Atlas Peak Fire, Napa, CA

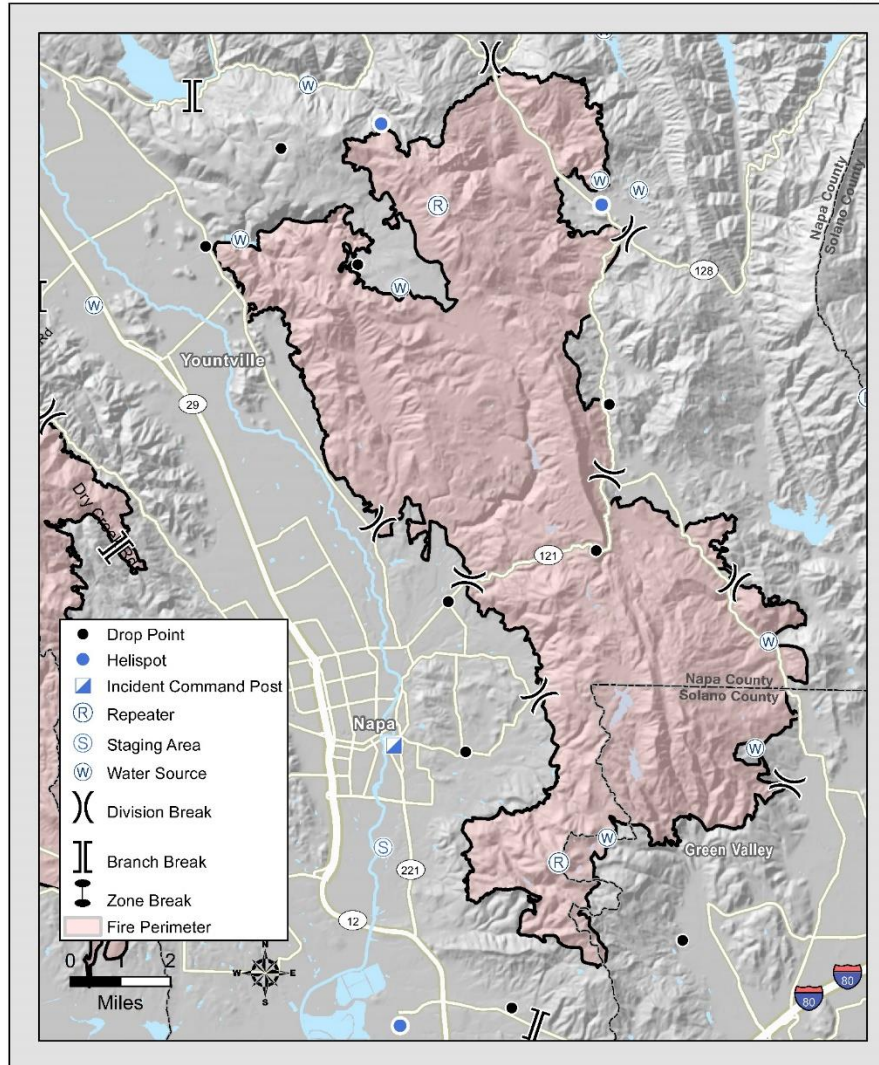


Different environment, different challenges.

Atlas Peak Fire, Napa, CA



Operations Map SOUTHERN LNU COMPLEX Atlas Fire CA-LNU-010105 FINAL



Everyone is getting strapped for resources and equipment. Multi-state fires are starting to “feel” common.

Consider communication changes for future wide area fires.



Future considerations for communications

NCSWIC: National Council on State Wide Interoperability Coordinators/DHS

NCSWIC

SAFECOM

Executive Summary

OVERVIEW

The complexity of communications management and the execution of services required at an incident or event has expanded significantly since the establishment of the National Incident Management System (NIMS) Incident Command System (ICS). Currently, the Communications Unit is positioned under the Logistics Section within ICS. The Logistics Section is staffed by personnel with knowledge, skills, and abilities oriented to providing telephony and radio network connectivity while serving as the touchpoint for communications services and equipment.

With the now added responsibilities for providing data connectivity at most all incidents, the essential personnel required for delivering communications now exceeds the span of control currently managed at the unit level. Most of the current Communications Unit personnel do not have the knowledge, skills, or abilities to address the ever-widening scope of communications needs (e.g., broadband, video capabilities management, field telemetry). Specifically, there is no specific position or place within ICS responsible for providing Information Technology (IT) personnel or resources.

We recommend the Communications Unit be elevated to a Communications Section within the General staff. Because of increasing communications support-staff complexity, the proposed Communications Section will include the existing Communications Unit, elevated to the Branch level and add an Information Technology Service Branch with requisite positions.

PROBLEM

The growth in demand for information technology has exceeded the capacity and capability of the current Communications Unit. Current trained personnel often may have the technical skills, but seldom find the time to establish positive radio communications and network connectivity. There is no specified position in the current ICS structure responsible for IT implementation.

Future considerations for communications

NCSWIC: National Council on State Wide Interoperability Coordinators/DHS

EVIDENCE AND RESEARCH

- Incident and Event After Action Reports regularly document 'communications' as a challenge
- Emergency response personnel have an expanding reliance on technology including video and data transmission, audio/video conferencing, mobile applications, and more
- In the late 1990's the Department of Defense elevated communications to the equivalent of an ICS Section by adding a J6 staff.
- J6 staff provided commanders better access to the people, processes, and communications technologies needed to execute missions
- The J6 staff to oversee the entirety of facilitating communications capabilities and network accessibility
- Private industry recognizes communications support and management should be conducted from top senior executives. Leaders with job titles including Chief Information Officer (CIO) and Chief Technology Officer (CTO) oversee the delivery of voice, data, and video communications capabilities throughout corporate America

RECOMMENDATION

An ICS Communications Section will address current and future communications challenges by giving the proper authority, skilled staff, and physical/cyber resources required. This Section will include the traditional communications unit functions for voice (e.g., Communications Unit Leader, Communications Unit Technician, etc.), as well as the functions for broadband (e.g., IT Service Unit Leader, Network Manager, IT Help Desk) and video. This ensures communications and IT professionals are prepared and capable of integrating communications and information technology into the Incident Command System (ICS) structure to support all-hazards planned and unplanned events. Additionally, it will provide standardized resources to simultaneously establish positive radio communications, network connectivity, and data management. Finally, the Communications Section will ensure logical organization of voice and data interoperability between ICS functions.

Thank you for watching. I appreciate it.

Jason Berman

KE7IHC

PNW team 2 Communications Leader.

Lieutenant, Lacey Fire District #3

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